

ABSTRACT

[0041] A method for forming a tri-gate semiconductor device that includes a substrate and a dielectric layer formed on the substrate includes depositing a first dielectric layer on the dielectric layer and etching the first dielectric layer to form a structure. The method further includes depositing a second dielectric layer over the structure, depositing an amorphous silicon layer over the second dielectric layer, etching the amorphous silicon layer to form amorphous silicon spacers, where the amorphous silicon spacers are disposed on opposite sides of the structure, depositing a metal layer on at least an upper surface of each of the amorphous silicon spacers, annealing the metal layer to convert the amorphous silicon spacers to crystalline silicon fin structures, removing a portion of the second dielectric layer, depositing a gate material, and etching the gate material to form three gates.